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EXAMINER	
BATTAGLIA, MICHAEL V	
ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/541,986	VAN DER KALL, HERMAN PETRUS	
	Examiner	Art Unit	
	Michael V. Battaglia	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 February 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20,22 and 23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6-8,10,11,14,16,18-20 and 22* is/are rejected.

7)☒ Claim(s) *4,5,9,12,13,15,17 and 23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 July 2005 and 03 January 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Drawings

1. The replacement drawing was received on January 3, 2008. This drawing is acceptable.

Claim Objections - 37 CFR 1.75(d)(1)

2. The following is a quotation of 37 CFR 1.75(d)(1):

> The claim or claims must conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.

Claims 1, 2, 4, 6-10, 12, 15, 17, 18, 20 and 23 are objected to under 37 CFR 1.75(d)(1), as failing to conform to the invention as set forth in the remainder of the specification.

a.) On the last line of claim 1, replacing "said motor is rotated" with --said motor rotates a turntable-- is suggested to conform the claimed invention to that set forth in the remainder of the specification (see Page 10, lines 11-18 and note that the turntable, and not the motor, is rotated by the motor in the turntable mode).

b.) On line 11 of claim 2, lines 5-6 of claim 6, line 5 of claim 7, line 6 of claim 8, line 10 of claim 18, and line 10 of claim 20, replacing "the motor is rotated" with --the motor rotates the disc-- is suggested to conform the claimed invention to that set forth in the remainder of the specification (see Page 5, lines 13-14 and note that the motor 4 rotates disc 2 and the motor itself is not rotated).

c.) On line 12 of claim 4, line 12 of claim 9, line 8 of claim 12, line 13 of claim 15, line 8 of claim 17, and line 11 of claim 23, replacing "said motor is rotated" with --said motor rotates the disc-- is suggested to conform the claimed invention to that set forth in the remainder of the specification (see Page 5, lines 13-14 and note that motor 4 rotates disc 2 and that motor 4 itself is not rotated).

d.) On lines 8-9 of claim 10, line 15 of claim 12, and line 20 of claim 15, replacing "rotation of said motor" with --rotation by said motor" is suggested (see Page 5, lines 13-14 and note that motor 4 rotates and is not itself rotated).

Appropriate correction is required. It is noted objection (a) in the Office action mailed October 3, 2007 addressed the motor being claimed as being rotated, but the claim amendments did not address the objection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen (US 6,359,856) in view of Glorioso et al (hereinafter Glorioso) (US 6,301,105).

In regard to claim 1, Nguyen discloses a disc drive apparatus (Figs. 1 and 2, element 22) for writing/reading information into and/or from a disc (Col. 4, line 15), comprising: a controllable motor (Fig. 2, element 24) for rotating a disc (Fig. 2, element 34); and a control unit having a first output for generating a control signal for said motor (inherent to the operation of "variable speed electric motor 24," which "driv[es] rotation of hub 28, and thus the disc 34, . . . while a . . . laser scanner 42 'reads' the spinning compact disc 34" (Col. 3, line 62 and Col. 4, lines 9-15)), wherein the control unit is configured to enter a mode in which said motor is rotated with a disc being present (Col. 4, lines 6-15). It is noted that, in the disc drive apparatus of Nguyen, the motor rotates the disc by rotating a turntable (Fig. 2, elements 28 and 30) with

which a fan (Fig. 2, element 36) has been integrated to generate beneficial cooling air flow (Fig. 2, element 40) "without appreciably increasing the space requirement for the drive structure 22 or requiring additional housing space for a separate cooling fan structure" (Col. 4, lines 6-20).

However, Nguyen does not disclose that the control unit is configured to switch modes of operation to a turntable mode in which said motor is rotated without a disc being present.

Glorioso discloses a disc drive apparatus (Fig. 1) for writing/reading information into and/or from a disc, comprising: a controllable motor ("fan motor" of Col. 5, line 65) for rotating a fan (Fig. 1, element 114 and Col. 5, lines 65-66); a control unit (Fig. 2) having a first output (Fig. 2, element 138) for generating a control signal for said motor (Col. 6, lines 43); wherein the control unit is configured to switch modes of operation to a mode in which said motor is rotated without a disc being present (fan 114 is rotated when the temperature of the disk drive exceeds a minimum temperature regardless of whether a disc is present (Fig. 6 and Col. 6, lines 25-43)).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the control unit of Nguyen to be configured to switch modes of operation to a turntable mode in which said motor (and turntable) of Nguyen is rotated without a disc being present as suggested by Glorioso, the motivation being to avoid deterioration of the disc drive of Nguyen due to increase in temperature by operating the fan of Nguyen, which is also the turntable of Nguyen, to generate a cooling air flow when the temperature of the disc drive of Nguyen exceeds a minimum temperature even without any without any disc being present (note that disc drive deterioration due to temperature increase is in the knowledge generally available to one of ordinary skill in the art (see Col. 2, lines 10-17 of Ikuma (US 5,297,116))).

In regard to claim 22, Glorioso discloses that the disc drive apparatus of Nguyen in view of Glorioso comprises temperature measuring means (Fig. 2, element 130) for generating a measuring signal (Fig. 2, element 132) indicating a temperature occurring within the disc drive apparatus (Col. 6, lines 25-35), the temperature measuring means being configured to measure the temperature of a disc drive component (temperature sensor 132 is inherently arranged for measuring the temperature of whatever disc drive component is nearest to temperature sensor 132); wherein said control unit has a signal input (Fig. 2, portion of fan control 134 that receives element 132) coupled to said temperature measuring means (Fig. 2), and is further configured to enter said turntable mode if, in an idle state with no disc loaded, said measuring signal indicates the temperature is above a threshold temperature (Fig. 2, element 136; Fig. 6; Col. 6, lines 25-43; and note that, when the disc drive apparatus of Nguyen in view of Glorioso is in an idle state with no disc loaded, the fan of Nguyen in view of Glorioso, which is also the turntable of Nguyen in view of Glorioso, will be rotated if the temperature exceeds a minimum temperature (see rejection of claim 1 over Nguyen in view of Glorioso above)).

4. Claims 1-3, 6, 7, 10, 11, 14 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the first embodiment (Figs. 1-3 and their descriptions) of Nakatsuka et al. (hereinafter Nakatsuka) (US 6,542,449) in view of Nguyen and further in view of Glorioso.

In regard to claim 1, Nakatsuka discloses a disc drive apparatus (Fig. 1, element 1) for writing/reading information into and/or from a disc (Fig. 1, element 2 and Col. 6, lines 57-59), comprising: a controllable motor (Fig. 1, element 3) for rotating a disc (Fig. 1, element 2) secured to a turntable (Fig. 1, element 3a); and a control unit (Fig. 1, element 13) having a first output (Fig. 1, portion of element 7 from which the arrow from element 7 to element 3 is output)

for generating a control signal (Fig. 1, arrow from element 7 to element 3) for said motor (Col. 8, lines 18-32). Nakatsuka does not disclose that the control unit is configured to switch modes of operation to a turntable mode in which said motor is rotated without a disc being present.

Nguyen suggests integrating a fan (Fig. 2, element 36) into a turntable (Fig. 2, elements 28 and 30) to generate beneficial cooling air flow (Fig. 2, element 40) "without appreciably increasing the space requirement for the drive structure 22 or requiring additional housing space for a separate cooling fan structure" (Col. 4, lines 6-20).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate a fan into the turntable of Nakatsuka as suggested by Nguyen, the motivation being to generate beneficial cooling air flow without appreciably increasing the space requirement for the disc drive apparatus or requiring additional housing space for a separate cooling fan structure.

Nakatsuka in view of Nguyen does not disclose that the control unit is configured to switch modes of operation to a turntable mode in which said motor is rotated without a disc being present.

Glorioso discloses a disc drive apparatus (Fig. 1) for writing/reading information into and/or from a disc, comprising: a controllable motor ("fan motor" of Col. 5, line 65) for rotating a fan (Fig. 1, element 114 and Col. 5, lines 65-66); a control unit (Fig. 2) having a first output (Fig. 2, element 138) for generating a control signal for said motor (Col. 6, lines 43); wherein the control unit is configured to switch modes of operation to a mode in which said motor is rotated without a disc being present (fan 114 is rotated when the temperature of the disk drive exceeds a minimum temperature regardless of whether a disc is present (Fig. 6 and Col. 6, lines 25-43)).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the control unit of Nakatsuka in view of Nguyen to be configured to switch modes of operation to a turntable mode in which said motor (and turntable) of Nakatsuka in view of Nguyen is rotated without a disc being present as suggested by Glorioso, the motivation being to avoid deterioration of the disc drive of Nakatsuka in view of Nguyen due to increase in temperature by operating the fan of Nakatsuka in view of Nguyen, which is also the turntable of Nakatsuka in view of Nguyen, to generate a cooling air flow when the temperature of the disc drive of Nakatsuka in view of Nguyen exceeds a minimum temperature even without any without any disc being present (note that disc drive deterioration due to temperature increase is in the knowledge generally available to one of ordinary skill in the art (see Col. 2, lines 10-17 of Ikuma)).

In regard to claim 2, Nakatsuka discloses that the disc drive apparatus further comprises a temperature measuring means (Fig. 1, element 5) for generating a measuring signal ("output of the thermistor 5" of Col. 8, lines 47-49) indicating a temperature occurring within the disc drive apparatus (Col. 7, lines 59-67), the temperature measuring means being configured to measure the temperature of a disc drive component ("thermistor 5 is provided in the vicinity of the LDU [(laser diode unit)] of the pickup 4" of Col. 7, lines 50-67); wherein said control unit has a signal input (Fig. 1, portion of upper-level controller 13 to which the arrow from thermistor 5 is input) coupled to said temperature measuring means (Col. 8, lines 47-49), and is configured to enter a fan mode (Fig. 2, step S8) in response to the measuring signal received from said temperature measuring means (Fig. 2, step S4 and Col. 9, lines 23-29 and Col. 10, lines 1-4), wherein in the

fan mode the motor is rotated without any writing and/or reading being executed by the disc drive apparatus (Fig. 2, step S8; Col. 9, lines 5-9; Col. 10, lines 32-51).

In regard to claim 3, Nakatsuka discloses that said control unit is configured to enter said fan mode if, at completion of a write/read operation ("after completion of a read/write operation" of Col. 9, lines 5-9), said measuring signal indicates a temperature ("temperature T of pickup 4" of Col. 9, lines 27-29) above a first threshold temperature ("predetermined acceptable temperature Ta" of Col. 9, lines 27-29; Fig. 2, step S4 and Col. 10, lines 1-4).

In regard to claim 6, Nakatsuka discloses that said control unit is further configured to set, in a fan mode (Fig. 2), a rotational speed of said motor at a predetermined safety value (rotational speed at "the destination pickup address" of Col. 13, line 5 and see Fig. 3) selected for optimum cooling effect (Col. 13, lines 2-11), wherein in the fan mode the motor is rotated without any writing and/or reading being executed by the disc drive apparatus (Fig. 2, step S8; Col. 9, lines 5-9; Col. 10, lines 32-51). Note that a reasonable interpretation of the claimed "optimum cooling effect" is not limited to a maximum cooling effect because a cooling effect can be optimized according to other factors such as cooling efficiency or power consumption. In the disc drive apparatus of Nakatsuka, the cooling effect is optimized to increase cooling efficiency by reducing "the temperature T of the LDU to be less than or equal to the acceptable temperature Ta" without an unnecessary increase in power consumption that would be caused by moving the pickup further inward than needed and rotating the disc faster than needed (Col. 13, lines 2-11 and note that the cooling process of Col. 13, lines 2-11 achieves the same effect as the iterative cooling process of Col. 10, line 12-Col. 13, line 42 and Col. 12, line 66-Col. 13, line 1 without the time-consuming iteration).

In regard to claim 6, if "optimum cooling efficiency" were interpreted narrowly as being limited to maximum cooling efficiency, Nakatsuka discloses that said control unit is further configured to set, in a fan mode (Fig. 2), a rotational speed of said motor at a predetermined safety value (rotational speed at "the destination pickup address" of Col. 13, line 5 and see Fig. 3), wherein in the fan mode the motor is rotated without any writing and/or reading being executed by the disc drive apparatus (Fig. 2, step S8; Col. 9, lines 5-9; Col. 10, lines 32-51), but does not disclose that the predetermined safety value is selected for maximum cooling effect.

"[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation" (MPEP 2144.05(II) *quoting In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Here, the general conditions of the claimed rotational speed and its cooling effect are disclosed in Fig. 3 of the Nakatsuka prior art.[1] It would have been obvious to one of ordinary skill in the art at the time the invention was made for the predetermined safety value of Nakatsuka to be selected for optimum cooling effect, the motivation being "[t]he normal desire of scientists or artisans to improve upon what is already generally known" (MPEP 2144.05(II) *quoting Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382).

In regard to claim 7, Nakatsuka discloses that said control unit is further configured to set, in a fan mode (Fig. 2), a rotational speed of said motor at a predetermined safety value ("rotational speed that is assigned to the destination zone" of Col. 10, lines 34-35) selected for low audibility (Col. 10, lines 32-42 and note that the predetermined safety value is selected for

[1] Nakatsuka even discloses that the rotational speed at the innermost zone has a maximum cooling effect (Fig. 3 and Col. 11, lines 10-37).

low audibility because the "rotational speed that is assigned to the destination zone," which is "the next zone closer to the center P of rotation" (Col. 10, lines 19-31), is lowest of the higher rotational speeds shown in Fig. 3 and a lower rotational speed will have lower audibility (see Col. 3, lines 6-7 of Shennib et al (US 5,898,572))), wherein in the fan mode the motor is rotated without any writing and/or reading being executed by the disc drive apparatus (Fig. 2, step S8; Col. 9, lines 5-9; Col. 10, lines 32-51).

In regard to claim 10, Nakatsuka discloses that the control unit is further configured to operate the disc drive apparatus in a duty cycle mode in which the control unit is alternately operative in a normal mode portion during which the writing/reading is performed, and in an energy saving mode portion during which the writing/reading is temporarily suspended while rotation of said motor is continued (Col. 13, lines 15-26).

In regard to claim 11, Nakatsuka discloses that the control unit is further configured to maintain a rotational speed of the motor substantially constant during the duty cycle mode (note the "or" situation of the "and/or" on Col. 13, line 24 where "the efficiency of cooling the pickup 4" is increased by solely by "mov[ing] the pickup 4 toward the center of rotation of the DVD-RAM disk 2" (Col. 13, lines 15-26)).

In regard to claim 14, Nakatsuka discloses that the disc drive apparatus further comprises temperature measuring means (Fig. 1, element 5) for generating a measuring signal ("output of the thermistor 5" of Col. 8, lines 47-49) indicating a temperature occurring within the disc drive apparatus (Col. 7, lines 59-67), the temperature measuring means being configured to measure the temperature of a disc drive component ("thermistor 5 is provided in the vicinity of the LDU [(laser diode unit)] of the pickup 4" and "is suitably used in the pickup 4 as a temperature

measuring device for detecting the temperature of the LDU" (Col. 7, lines 50-67)); wherein said control unit has a signal input (Fig. 1, portion of upper-level controller 13 to which the arrow from thermistor 5 is input) coupled to said temperature measuring means (Col. 8, lines 47-49), and is further configured to monitor said measuring signal during a write/read operation, and to enter said duty cycle mode in response to receiving the measuring signal indicating a temperature above a second threshold temperature ("predetermined acceptable temperature Ta" of Col. 9, lines 24-32 and Col. 10, lines 1-4, which is used to determine "whether the pickup 4 is overheated" in Col. 13, lines 15-20 (see Col. 9, lines 30-32)) higher than a first threshold temperature (Col. 13, lines 15-26; note that claim 14 does not connect the claimed "first threshold temperature" to the claimed "disc drive apparatus" in any way other than being lower than the second threshold temperature; and further note that second threshold temperature of Nakatsuka (i.e. "predetermined acceptable temperature Ta"), which is used to determine whether the pickup 4 is overheated, is higher than an infinite number of first threshold temperatures which are lower than Ta and higher than the theoretical absolute zero temperature).

In regard to claim 18, Nakatsuka discloses that the disc drive apparatus is an optical disc drive apparatus ("optical disc drive apparatus" of Col. 6, lines 57-58) comprising a controllable light beam generator ("laser diode unit (LDU)" of Col. 7, line 42); wherein said control unit has a second output for generating a control signal for said light beam generator (because "upper-level controller 13 . . . exchang[es] commands and data with a host 12" (Col. 8, lines 20-27 and Col. 8, line 65-Col. 9, line 2), the received commands controlling performance of read/write operations (Col. 9, lines 18-22) which are performed using the LDU (Col. 7, lines 50-51), the upper-level controller 13 must have an output to control the LDU based on a command for a

read/write operation); and wherein the control unit is further configured to switch off said light beam generator while operating in a fan mode (the light beam generator of Nakatsuka is switched off during the fan mode of Fig. 2 because no read/write operation is being performed (Col. 9, lines 5-22)) where the motor is rotated without any writing and/or reading being executed by the disc drive apparatus (Fig. 2, step S8; Col. 9, lines 5-9; Col. 10, lines 32-51).

In regard to claim 19, Nakatsuka discloses that the disc drive apparatus further comprises a temperature measuring means (Fig. 1, element 5) for generating a measuring signal ("output of the thermistor 5" of Col. 8, lines 47-49) indicating a temperature occurring within the disc drive apparatus (Col. 7, lines 50-67), the temperature measuring means being configured to measure the temperature of said light beam generator ("thermistor 5 is provided in the vicinity of the LDU [(laser diode unit)] of the pickup 4" and "is suitably used in the pickup 4 as a temperature measuring device for detecting the temperature of the LDU" (Col. 7, lines 50-67)).

In regard to claim 20, Nakatsuka discloses that the disc drive apparatus comprises at least one controllable functional unit ("laser diode unit (LDU)" of Col. 7, line 42); wherein said control unit has a second output for generating a control signal for said at least one controllable functional unit (because "upper-level controller 13 . . . exchang[es] commands and data with a host 12" (Col. 8, lines 20-27 and Col. 8, line 65-Col. 9, line 2), the received commands controlling performance of read/write operations (Col. 9, lines 18-22) which are performed using the LDU (Col. 7, lines 50-51), the upper-level controller 13 must have an output to control the LDU based on a command for a read/write operation (and note that this output is a "third output" because it is in addition to the output to element 3 and the output to element 6 from upper-level controller 13 shown in Fig. 1)); and wherein the control unit is further configured to switch off

said at least one controllable functional unit while operating in a fan mode (Fig. 2 and note that the light beam generator of Nakatsuka is switched off during the fan mode of Fig. 2 because no read/write operation is being performed (Col. 9, lines 5-22)) where the motor is rotated without any writing and/or reading being executed by the disc drive apparatus (Fig. 2, step S8; Col. 9, lines 5-9; Col. 10, lines 32-51).

5. Claims 1 and 8 are rejected under 35 U.S.C. 103(a) as being obvious over the second embodiment (Figs. 4-5 and their descriptions) of Nakatsuka in view of Nguyen and further in view of Glorioso.

In regard to claim 1, Nakatsuka discloses a disc drive apparatus (Fig. 4, element 21) for writing/reading information into and/or from a disc (Fig. 4, element 2 and Col. 6, lines 57-59), comprising: a controllable motor (Fig. 4, element 3) for rotating a disc (Fig. 4, element 2) secured to an turntable (Col. 13, lines 41-44 and see Fig. 1, element 3a); a control unit (Fig. 4, element 29) having a first output (Fig. 4, portion of element 24 from which the arrow from element 24 to element 3 is output) for generating a control signal (Fig. 4, arrow from element 24 to element 3) for said motor (Col. 13, lines 48-59). Nakatsuka does not disclose that the control unit is configured to switch modes of operation to a turntable mode in which said motor is rotated without a disc being present.

Nguyen suggests integrating a fan (Fig. 2, element 36) into a turntable (Fig. 2, elements 28 and 30) to generate beneficial cooling air flow (Fig. 2, element 40) "without appreciably increasing the space requirement for the drive structure 22 or requiring additional housing space for a separate cooling fan structure" (Col. 4, lines 6-20).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate a fan into the turntable of Nakatsuka as suggested by Nguyen, the motivation being to generate beneficial cooling air flow without appreciably increasing the space requirement for the disc drive apparatus or requiring additional housing space for a separate cooling fan structure. Nakatsuka in view of Nguyen does not disclose that the control unit is configured to switch modes of operation to a turntable mode in which said motor is rotated without a disc being present.

Glorioso discloses a disc drive apparatus (Fig. 1) for writing/reading information into and/or from a disc, comprising: a controllable motor ("fan motor" of Col. 5, line 65) for rotating a fan (Fig. 1, element 114 and Col. 5, lines 65-66); a control unit (Fig. 2) having a first output (Fig. 2, element 138) for generating a control signal for said motor (Col. 6, lines 43); wherein the control unit is configured to switch modes of operation to a mode in which said motor is rotated without a disc being present (fan 114 is rotated when the temperature of the disk drive exceeds a minimum temperature regardless of whether a disc is present (Fig. 6 and Col. 6, lines 25-43)).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the control unit of Nakatsuka in view of Nguyen to be configured to switch modes of operation to a turntable mode in which said motor (and turntable) of Nakatsuka in view of Nguyen is rotated without a disc being present as suggested by Glorioso, the motivation being to avoid deterioration of the disc drive of Nakatsuka in view of Nguyen due to increase in temperature by operating the fan of Nakatsuka in view of Nguyen, which is also the turntable of Nakatsuka in view of Nguyen, to generate a cooling air flow when the temperature of the disc drive of Nakatsuka in view of Nguyen exceeds a minimum temperature even without any

without any disc being present (note that disc drive deterioration due to temperature increase is in the knowledge generally available to one of ordinary skill in the art (see Col. 2, lines 10-17 of Ikuma)).

In regard to claim 8, Nakatsuka discloses that said control unit is further configured to start a first timer (Fig. 4, element 27) on transition to a fan mode (Fig. 5, step S23), and to exit said fan mode after a first predetermined time ("wait time of 3 minutes" of Col. 14, lines 57) determined by said first timer (Col. 14, lines 54-66 and note that FAN mode is exited after a wait time of 3 minutes when the disc drive apparatus transitions from the idling state of step 23 to the sleep mode state of step 24 (Fig. 5)), wherein in the fan mode ("idling state" of Col. 14, line 43) the motor is rotated without any writing and/or reading being executed by the disc drive apparatus (Fig. 5, step S23 and Col. 14, lines 17, 36-44 and 54-66).

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakatsuka in view of Nguyen and further in view of Glorioso as applied to claim 1 above, and further in view of Matsui (US 2001/0053112).

Nakatsuka in view of Nguyen and further in view of Glorioso discloses the disc drive apparatus according to claim 1 (see rejection of claim 1 over Nakatsuka in view of Nguyen and further in view of Glorioso above) but does not disclose that the control unit is further configured to switch the modes of operation to a first safety mode during which the writing/reading is performed at a first predetermined safety speed.

Matsui discloses a disc drive apparatus (Fig. 14) for writing and/or reading information into and/or from a disc (Paragraphs 0279 and 0281), comprising: a controllable motor (Fig. 14, element 2) for rotating a disc (Fig. 14, element 1); a control unit (Fig. 14, elements 14, 15 and

17-19) having a first output for generating a control signal for said motor (Fig. 17, step S192 and Paragraph 0295). Matsui discloses that the control unit is configured to switch modes of operation to a first safety mode (mode within in which writing is restarted with a write rate reduced by one step (Fig. 17, steps S192-S193 and Paragraphs 0319-0320)) during which writing/reading is performed at a first predetermined safety speed (write rate reduced by one step (Paragraphs 0319-0320)) "to carry out a stable data recording, and to avoid the cause of temperature rise" (Paragraph 0320).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the control unit of Nakatsuka in view of Nguyen and further in view of Glorioso to be further configured to switch the modes of operation to a first safety mode during which the writing/reading is performed at a first predetermined safety speed as suggested by Matsui, the motivation being to carry out a stable data recording, and to avoid the cause of temperature rise.

Allowable Subject Matter

7. Claims 4, 5, 9, 12, 13, 15, 17 and 23 would be allowable if rewritten or amended to overcome the objection(s) forth in this Office action. Claims 4, 5, 9, 12, 13, 15, 17 and 23 contain allowable subject matter for the reasons specified in the Office action mailed October 3, 2007.

Response to Arguments

8. Applicant's arguments filed January 3, 2008 with respect to the combination of Nguyen in view of Glorioso have been fully considered but they are not persuasive. Applicant argues that Nguyen and Glorioso, alone or in combination, do not teach or suggest a turntable mode in

which a controllable motor, which is for rotating a disc, is rotated without a disc being present (Pages 26-27 of Applicant's Response filed January 3, 2008).

Although Applicant's argument purports to argue against the combination of Nguyen and Glorioso, Applicant's arguments only explain why Nguyen and Glorioso individually do not meet the claim limitations (see *Id.*). In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Here, the rejection is based upon the combination of Nguyen and Glorioso. Glorioso teaches rotating a fan 114 when the temperature of the disk drive exceeds a minimum temperature regardless of whether a disc is present, which includes when the disc is not present (Fig. 6 and Col. 6, lines 25-43). Nguyen suggests integrating a fan (Fig. 2, element 36) into a turntable (Fig. 2, elements 28 and 30) to generate beneficial cooling air flow (Fig. 2, element 40) "without appreciably increasing the space requirement for the drive structure 22 or requiring additional housing space for a separate cooling fan structure" (Col. 4, lines 6-20). In the combination Nguyen and Glorioso, the fan of Nguyen, which is also the turntable of Nguyen, is rotated by the motor of Nguyen when the disc drive temperature exceeds a minimum temperature without a disc being present (note that the regular control of Nguyen controls rotation of the fan/turntable when disc is present) to avoid deterioration of the disc drive of Nguyen. Therefore, the combination of Nguyen and Glorioso has a turntable mode in which a controllable motor, which is for rotating a disc, is rotated without a disc being present.

9. Applicant's remaining arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V. Battaglia whose telephone number is (571)272-7568. The examiner can normally be reached on M-F, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A. Wellington can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrea L Wellington/
Supervisory Patent Examiner, Art Unit 2627

/Michael V. Battaglia/
Patent Examiner, Art Unit 2627